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| 09/368,496      | 08/05/1999  | SEIJI HASHIMOTO      | 35.C13721           | 5609             |

5514 7590 06/25/2003

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| EXAMINER |
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TILLERY, RASHAWN N

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| ART UNIT | PAPER NUMBER |
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2612

DATE MAILED: 06/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

*Supplemental*  
**Office Action Summary**

Application No.

09/368,496

Applicant(s)

HASHIMOTO, SEIJI

Examiner

Rashawn N Tillery

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 August 1999.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 18 and 29-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_                      6) ☐ Other:

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 21-28 and 34 are rejected under 35 U.S.C. 102(e) as being anticipated by Guidash (US6107655).

Regarding claim 21, Guidash discloses, in figure 3b, an image pickup apparatus comprising:

a plurality of unit cells arranged in an array, each unit cell including a plurality of photoelectric conversion portions (11, 12, 21, 22) and a common circuit (32, 34, 37) for inputting signals from the plurality of photoelectric conversion portions and outputting the signals from the unit cell; and

addition switching means (TG) for arbitrarily switching the signals from the photoelectric conversion portions, which are to be added in the cell.

The examiner notes that Applicant's claim language is currently written broadly enough where a broad interpretation of the prior art reference could be read on it- specifically the

limitation "switching." For instance, Guidash teaches "switching" on signals in either odd or even rows to be added by the amplifier 32.

Regarding claim 22, see claim 21 above.

Regarding claim 23, see claim 21 above.

Regarding claim 24, the examiner notes that even though Guidash reads out signals row by row, eventually all the signals in both the horizontal and vertical array will be added.

Regarding claim 25, Guidash discloses the addition means has a switching mode for adding all the signals (first the odd and then the even rows; the examiner notes that Applicant does not claim that all the pixels in a unit cell are added at the same time- simultaneously).

Regarding claim 26, Guidash discloses a driving pulse switching means (see col. 3, line 56 to col. 4, line 27) for vertical scanning means of the image pickup apparatus.

Regarding claim 27, see claim 21 above. The examiner notes that the vertical scanning means is equivalent to Guidash's transfer gates.

Regarding claim 28, see claim 21 above.

Regarding claim 34, see figure 3b where the common circuit is centrally located.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-6, 12-15, 18, 29-31 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guidash (US6107655) in view of Watanabe et al (US5856686).

Regarding claim 1, Guidash discloses, in figure 3b, an image pickup apparatus comprising:

a plurality of unit cells arranged in an array, each unit cell including a plurality of photoelectric conversion portions (11, 12, 21, 22) and a common circuit (32, 34, 37) for inputting signals from the plurality of photoelectric conversion portions and outputting the signals from the unit cell;

first addition means (32) for adding the signals from the plurality of photoelectric conversion portions in the unit cell.

Guidash teaches multiple transfer gates (TG) for read-out of odd rows and even rows, respectively. The odd and even rows are read out into their respective sample-hold circuits (80, 90). Guidash does not expressly disclose the output of the signals beyond the sample-hold circuits; and thus, Guidash does not explicitly disclose a second addition means. However, it is well known in the camera art to utilize a horizontal scanning circuit for outputting signals. An example of such a circuit is shown in figure 8 of the Watanabe patent. It would have been obvious to one of ordinary skill in the art to implement Watanabe's teachings since Guidash does not reveal how the signals are read out.

Regarding claim 2, see claim 1 above.

Regarding claim 3, see claim 1 above.

Regarding claim 4, see claim 1 above.

Regarding claim 5, see claim 1 above.

Regarding claim 6, Guidash discloses in col. 4, line 26 a read means (TG) for reading out signals from photoelectric conversion portions of two lines in a vertical direction by interlaced scanning.

Regarding claim 12, Guidash teaches a reset means (36) in figure 3b.

Regarding claim 13, Guidash discloses, in figure 3b, sample-hold circuits for storing signals of odd and even rows, respectively. Guidash does not expressly disclose a signal variation means nor a differential means. Watanabe teaches that it is well known in the art to utilize a differential amplifier (58) for outputting a difference signal between a first voltage of signals output the transistor and a second voltage output from the transistor after the resetting operation (see col. 13, line 48 to col. 14, line 49). It would have been obvious to one of ordinary skill in the art to implement Watanabe's teachings in an effort to eliminate noise from the image signal.

Regarding claim 14, see claim 13 above.

Regarding claim 15, see claim 13 above.

Regarding claim 18, see figure 3b where the common circuit is centrally located.

Regarding claim 29, see claim 13 above.

Regarding claim 30, see claim 13 above.

Regarding claim 31, see claim 13 above.

Regarding claim 37, see claim 1 above. In addition, neither Guidash nor Watanabe expressly disclose a lens or a signal processing circuit. However, Official Notice is taken that it is well known in the camera art to utilize a lens system for forming an image on a sensor; and it is also well known to in the camera art to process a signal after it has been output from a sensor

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unit. It would have been obvious for one of ordinary skill in the art to implement both a lens system and a signal processing circuit since both features are notoriously associated with cameras.

2. Claims 7-11 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guidash in view of Lee et al (US6466265).

Regarding claim 7, Guidash discloses, in figure 3b, an image pickup apparatus comprising:

a plurality of unit cells arranged in an array, each unit cell including a plurality of photoelectric conversion portions (11, 12, 21, 22) and a common circuit (32, 34, 37) for inputting signals from the plurality of photoelectric conversion portions and outputting the signals from the unit cell.

Guidash does not expressly disclose addition means for adding signals of the same color outside the unit cell.

Lee teaches in figure 2b that it is well known in the camera art to add signals of the same color in the colors' respective output channel (see col. 3, lines 49-64). It would have been obvious to one of ordinary skill in the art to implement Lee's teachings of read out for color images. One would have motivated to do so in an effort to read out color images at high frame and pixel rates.

Regarding claim 8, Guidash discloses, in figure 3b, the common circuit comprises amplification means (32).

Regarding claim 9, see claim 7 above.

Regarding claim 10, Guidash discloses in col. 4, line 26 a read means (TG) for reading out signals from photoelectric conversion portions of two lines in a vertical direction by interlaced scanning.

Regarding claim 11, see claim 7 above.

Regarding claim 38, see claim 7 above. In addition, Lee discloses a signal processing circuit (21, 22, 23 and 24) in figure 2b. Neither Guidash nor Lee expressly disclose a lens system. However, Official Notice is taken that it is well known in the camera art to utilize a lens system. It would have been obvious to one of ordinary skill in the art to implement such a feature since lens systems are notoriously associated with cameras.

3. Claims 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guidash.

Regarding claim 39, Guidash discloses, in figure 3b, an image pickup apparatus comprising:

a plurality of unit cells arranged in an array, each unit cell including a plurality of photoelectric conversion portions (11, 12, 21, 22) and a common circuit (32, 34, 37) for inputting signals from the plurality of photoelectric conversion portions and outputting the signals from the unit cell; and

addition switching means (TG) for arbitrarily switching the signals from the photoelectric conversion portions, which are to be added in the cell.

The examiner notes that Applicant's claim language is currently written broadly enough where a broad interpretation of the prior art reference could be read on it- specifically the limitation "switching." For instance, Guidash teaches "switching" on signals in either odd or even rows to be added by the amplifier 32.



Guidash does not expressly disclose a lens or a signal processing circuit. However, Official Notice is taken that it is well known in the camera art to utilize a lens system for forming an image on a sensor; and it is also well known to in the camera art to process a signal after it has been output from a sensor unit. It would have been obvious for one of ordinary skill in the art to implement both a lens system and a signal processing circuit since both features are notoriously associated with cameras.

***Allowable Subject Matter***

Claims 16, 17, 19, 20, 32, 33, 35 and 36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claims 16 and 32, the prior art does not teach or fairly suggest an image pickup apparatus comprising a plurality of unit cells arranged in an array, each unit cell including a plurality of photoelectric conversion portions and a common circuit for inputting signals from the plurality of photoelectric conversion portions and outputting the signals from the unit cell, wherein

the system utilizes an adjustment means for adjusting at least a pitch between the photoelectric conversion portions to an equal pitch in at least one of a vertical direction and a horizontal direction.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rashawn N Tillery whose telephone number is 703-305-0627. The examiner can normally be reached on 9AM-6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on 703-305-4929. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

RNT

June 18, 2003